Evaluating Targeted Programs to Maximally Reduce the Transmission of Perinatal HIV

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Evaluation of the targeted programs to reduce the transmission of perinatal HIV will involve a collaboration between staff from the epidemiology, program and surveillance branches at the Division of HIV and AIDS Prevention at the CDC, and staff from the 16 sites who have received funding from Congress. In this presentation, I'll be describing the roles of the prevention sites and of the CDC in the evaluation, the types of prevention programs, key measures of interest for the evaluations, data to assess program impact, and types of evaluation analyses.

We anticipate that each site will evaluate the impact of its own programs. CDC will provide technical assistance for program evaluations, and CDC will ask the sites to share data from their evaluations to assess how well various types of programs work across sites.

The sites are engaged in a variety of targeted programs to reduce perinatal HIV transmission. We've divided those programs into two main categories, according to the types of data that could be used to evaluate those categories. We call the first category of programs "individual-based," because these programs can be evaluated using the individual woman as the unit of analysis. Examples include rapid testing programs and case management programs. The second category of programs (e.g., community outreach, social marketing, or provider training programs) is called "population-based" because we'll most likely be relying on population-based data to determine their effectiveness.

Types of Measures

Process, impact and outcome measures are the types of measures that we'll be working with the sites to collect. Process measures indicate how well a program is being implemented. Impact measures show how well a program is reaching its intermediate goals – these measures are likely to address various steps along the cascade of events that lead to perinatal transmission. The outcome measure indicates how well the program is reaching its primary objective, in this case, reduced perinatal HIV transmission.

Some brief examples of process measures include:

- the proportion of women eligible for rapid testing who are, in fact, offered rapid testing;
- the number and type of services provided to case management clients; and
- the number of providers who attend training sessions on, for example, voluntary HIV counseling and testing of pregnant women.

Examples of impact, or intermediate measures, include:

- the number of eligible women who accept a rapid test at labor and delivery;
- the change in the proportion of:

- HIV-positive case management clients who get appropriate preventive treatment during their pregnancy;
- providers who offer counseling and testing to all pregnant women.

Of course, the key outcome measure is the change in the proportion of HIV-positive women who transmit the infection to their infants.

Different types of programs address different steps along the cascade that lead to perinatal transmission of HIV. Social marketing and outreach programs are most likely to target the first steps of the cascade, that is, prenatal care and counseling and testing of pregnant women. To the extent that case management is focused on pregnant women already known to be HIV-positive, case management should help ensure that these women get appropriate treatment and that transmission of HIV to their infants is prevented. Rapid testing potentially addresses a broader range of the cascade – testing pregnant women at labor and delivery and, if they are positive, providing them with treatment that will ultimately prevent transmission. Similarly, provider training, depending on the focus of the training, could impact many steps of the cascade, from counseling and testing pregnant women to appropriate treatment of HIV-positive pregnant women.

In its assessment of program impact across sites, CDC will be particularly interested in three key measures. The first, of course, is the outcome measure, that is, the change in the proportion of HIV-positive women who transmit HIV to their infants. Two of the intermediate impact measures also will be looked at closely: 1) the proportion of pregnant women who receive voluntary HIV counseling and testing during pregnancy; and 2) the proportion of HIV-positive pregnant women who receive appropriate preventive treatment.

Data Collection

A chief challenge for the evaluators will be obtaining data on the measures of interest and, in particular, identifying data to measure changes in testing rates among all pregnant women. The states have many different mechanisms for collecting these data. Some states record HIV counseling and testing information on their birth certificates. Others note it on newborn screening forms. A few states use the PRAMS survey of women who have recently delivered to determine testing rates. Medicaid is a potential source of testing data. A few states are engaged in audits of medical records to learn about various types of testing that occur during pregnancy.

Collection of data on the other two measures of particular interest to CDC – the proportion of HIV-positive pregnant women who get appropriate preventive treatment, and the proportion of HIV-positive women who transmit HIV to their infants – may be more straightforward. For the majority of sites that are conducting enhanced perinatal surveillance, these data will be available from the enhanced perinatal surveillance forms. CDC will be working with sites that are not conducting enhanced perinatal surveillance to utilize other mechanisms available for collecting data on these measures.

We also will want to collect additional data to help evaluate program success. For instance, in any given targeted area, there may well be other HIV prevention programs in operation. We'll want to document the existence and purpose of those programs and try to understand the impact those programs may have had on our measures of interest. CDC will want to help the sites look at program costs. Finally, there

may be room for a qualitative component to this evaluation, especially because our task is to reach a small population of difficult-to-access women. Case studies – without identifying individual women – of how to reach and provide services to this population may turn out to be a very useful component of the evaluation.

Data Analysis

To evaluate the individual-based programs, it will be important to assess whether the targeted services provided to individual women were related to improvements in rates of testing, treatment and transmission. Most of the programs centered around rapid testing will collect impact data on uninfected women, particularly on the proportion of eligible women who were tested by the time of delivery. Outcomes for HIV-positive women who were determined to be positive through rapid testing, or who were enrolled in case management because they were pregnant and HIV-positive, will be linked to programmatic activities, or the services provided to these women. The goal at the local and CDC levels will be to approach the evaluation of targeted programs as a collaborative effort between epidemiology, program, and surveillance staffs.

For the population-based programs, such as social marketing, community outreach and provider training, we expect that each sites' epidemiology, program and surveillance teams will collect population-based measures of testing, treatment and transmission before, during and after interventions. Having these data will enable us to evaluate program success using a time-series technique. In a time-series analysis, we look at rates (of a desired behavior or event such as testing for HIV) in the targeted population during a baseline period before the campaign begins, during the campaign and after the campaign ends. If rates increase after the campaign begins and remain higher than baseline rates in the period after the campaign ends, we would have some evidence that the campaign was associated with higher rates.

Another analytic technique that could be used along with time-series to demonstrate a program's impact is that of comparison groups. In this technique, evaluators would compare rates of a desired behavior or event in populations not targeted by a campaign to rates) in targeted populations during the same time periods (i.e, pre-, during, and post-campaign). Higher rates in targeted populations during and after the campaign and constant rates in untargeted populations would suggest campaign success.

To enable sites to share information about their programs and their evaluations, we are creating a web site for the prevention grantees. It will be a password protected website that only the grantees and the CDC will be able to access. We'll be asking you to submit information about your program activities and evaluation plans – some of you already have done this – to post on the web. We'd also like to post any instruments or materials you've developed that you're willing to share.

To conclude, the CDC will be offering technical assistance in the local site evaluations of the targeted programs and also will be collecting data to assess program impact across 16 funded program sites. For purposes of the evaluation, the programs fall into two types – those where the unit of analysis is the individual and those where the unit of analysis is a population. Data for assessing program impact will come from several sources including, where available, enhanced perinatal surveillance. A major challenge in some sites will be accessing data to measure testing rates among pregnant women. We'll encourage the use of both time-series analyses and comparison groups to evaluate program impact, and we'll also encourage more qualitative or descriptive analyses. We envision a strong partnership between

epidemiology, program and prevention staffs at both the local and CDC levels.